

What is claimed is:

1. A method of identifying an anti-angiogenic compound comprising:
 - a) contacting a transgenic zebrafish that expresses a reporter protein in blood vessels, with a test compound;
 - b) comparing the blood vessels in the zebrafish contacted with the test compound with the blood vessels of a transgenic zebrafish that was not contacted with the test compound.
 - c) determining the effect of the test compound on blood vessel growth, such that if blood vessel growth in the zebrafish contacted with the test compound is less than blood vessel growth in the zebrafish that was not contacted with the test compound, the compound is an anti-angiogenic compound.
2. The method of claim 1, wherein the reporter protein is a fluorescent protein.
3. The method of claim 2, wherein the fluorescent protein is green reef coral fluorescent protein.
4. The method of claim 2, wherein the fluorescent protein is a red fluorescent protein.
5. The method of claim 1, wherein the reporter protein is under the control of a *VEGFR2* expression sequence.
6. A method of identifying a pro-angiogenic compound comprising:
 - a) contacting a transgenic zebrafish that expresses a reporter protein in blood vessels, with a test compound;
 - b) comparing the blood vessels in the zebrafish contacted with the test compound with the blood vessels of a transgenic zebrafish that was not contacted with the test compound.
 - c) determining the effect of the test compound on blood vessel growth, such that if blood vessel growth in the zebrafish contacted with the test compound is greater than blood vessel growth in the zebrafish that was not contacted with the test compound, the compound is a pro-angiogenic compound.
7. The method of claim 6, wherein the reporter protein is a fluorescent protein.
8. The method of claim 7, wherein the fluorescent protein is green reef coral fluorescent protein.

9. The method of claim 7, wherein the fluorescent protein is a red fluorescent protein.

10. The method of claim 6, wherein the reporter protein is under the control of a *VEGFR2* expression sequence.

11. A method of identifying a blood vessel related gene that is involved in blood vessel growth comprising:

a) comparing a transgenic zebrafish containing blood vessels that express a reporter protein, with a transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene; and

b) determining the effect of the altered blood vessel related gene on blood vessel growth such that if there is a difference between the blood vessels of the transgenic zebrafish containing blood vessels that express a reporter protein and the transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene, the blood vessel related gene is involved in blood vessel growth.

12. The method of claim 11, wherein the reporter protein is a fluorescent protein.

13. The method of claim 12, wherein the fluorescent protein is green reef coral fluorescent protein.

14. The method of claim 12, wherein the fluorescent protein is a red fluorescent protein.

15. The method of claim 11, wherein the reporter protein is under the control of a *VEGFR2* expression sequence.

16. A method of identifying a pro-angiogenic blood vessel related gene that modulates the effects of an anti-angiogenic compound comprising:

a) contacting a transgenic zebrafish containing blood vessels that express a reporter protein with an anti-angiogenic compound;

b) contacting a transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene with an anti-angiogenic compound;

c) comparing the transgenic zebrafish containing blood vessels that express a reporter protein with the transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene; and

d) determining the effect of the altered gene on blood vessel growth, such that if blood vessel growth in the transgenic zebrafish containing blood vessels that expresses a reporter protein is less than blood vessel growth in the zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene, the blood vessel related gene is a pro-angiogenic gene that modulates the effects of an anti-angiogenic compound.

17. The method of claim 16, wherein the reporter protein is a fluorescent protein.

18. The method of claim 17, wherein the fluorescent protein is green coral reef fluorescent protein.

19. The method of claim 17, wherein the fluorescent protein is red fluorescent protein.

20. The method of claim 16, wherein the reporter protein is under the control of a VEGFR2 expression sequence.

21. A method of identifying an anti-angiogenic blood vessel related gene that modulates the effects of a pro-angiogenic compound comprising:

a) contacting a transgenic zebrafish containing blood vessels that express a reporter protein with a pro-angiogenic compound;

b) contacting a transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene with a pro-angiogenic compound;

c) comparing the transgenic zebrafish containing blood vessels that express a reporter protein with the transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene; and

d) determining the effect of the altered gene on blood vessel growth, such that if blood vessel growth in the transgenic zebrafish containing blood vessels that express a reporter protein is greater than blood vessel growth in the zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel

related gene, the blood vessel related gene is an anti-angiogenic gene that modulates the effects of a pro-angiogenic compound.

22. The method of claim 21, wherein the reporter protein is a fluorescent protein.

23. The method of claim 22, wherein the fluorescent protein is green coral reef fluorescent protein.

24. The method of claim 22, wherein the fluorescent protein is red fluorescent protein.

25. The method of claim 21, wherein the reporter protein is under the control of a *VEGFR2* expression sequence.

26. A method of identifying a pro-angiogenic compound that modulates the effects of an anti-angiogenic blood vessel related gene:

a) contacting a transgenic zebrafish containing blood vessels that express a reporter protein and has an altered anti-angiogenic blood vessel related gene with a test compound;

b) comparing the transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel-related gene contacted with the test compound with the blood vessels of a transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel-related gene that was not contacted with the test compound; and

c) determining the effect of the test compound on blood vessel growth, such that if blood vessel growth in the transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene contacted with a test compound is greater than blood vessel growth in the zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene, the test compound is a pro-angiogenic compound that modulates the effects of an anti-angiogenic blood vessel related gene.

27. The method of claim 26, wherein the reporter protein is a fluorescent protein.

28. The method of claim 27, wherein the fluorescent protein is green coral reef fluorescent protein.

29. The method of claim 27, wherein the fluorescent protein is red fluorescent protein.

30. The method of claim 26, wherein the reporter protein is under the control of a VEGFR2 expression sequence.

31. A method of identifying an anti-angiogenic compound that modulates the effects of a pro-angiogenic blood vessel related gene:

- a) contacting a transgenic zebrafish containing blood vessels that express a reporter protein and has an altered pro-angiogenic blood vessel related gene with a test compound;
- b) comparing the transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel-related gene contacted with the test compound with the blood vessels of a transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel-related gene that was not contacted with the test compound; and
- c) determining the effect of the test compound on blood vessel growth, such that if blood vessel growth in the transgenic zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene contacted with a test compound is less than blood vessel growth in the zebrafish containing blood vessels that express a reporter protein and has an altered blood vessel related gene, the test compound is an anti-angiogenic compound that modulates the effects of a pro-angiogenic blood vessel related gene.

32. The method of claim 31, wherein the reporter protein is a fluorescent protein.

33. The method of claim 32, wherein the fluorescent protein is green coral reef fluorescent protein.

34. The method of claim 32, wherein the fluorescent protein is red fluorescent protein.

35. The method of claim 31, wherein the reporter protein is under the control of a VEGFR2 expression sequence.